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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,673	03/10/2004	Ashish M. Sukhadia	CPCM:0046/FLE/FAR/STA 210	4144

7590 03/08/2007

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EXAMINER	
LEE, RIP A	
ART UNIT	PAPER NUMBER
1713	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/08/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/797,673	SUKHADIA ET AL.	
	Examiner	Art Unit	
	Rip A. Lee	1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 December 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15,18-33,36-43 and 46-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15, 18-33, 36-43, 46-48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This office action follows a response filed on December 4, 2006. Claims 1-15, 18-33, 36-43, 46-48 remain pending.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 46-48 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 46-48 also provide a listing of metallocenes that are excluded from claimed process. The structures revealed on pages 11-13 of the specification clearly show that all compounds listed in claims 46-48, except nonylphenylsilyl*bis*(1-indenyl)hafnium dichloride, are preferred embodiments of the invention.

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† *Ex Parte Grasselli*, 231 USPQ 393 (Bd. App. 1983), *aff'd mem.*, 738 F.2d 453 (Fed. Cir. 1984). Any claim containing a negative limitation which does not have basis in the original disclosure are rejected under 35 U.S.C. 112, first paragraph for failing to comply with the written description requirement. See MPEP § 2173.05(i).

Claim Rejections - 35 USC § 102 / 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 38-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDaniel *et al.* (U.S. 6,376,415).

McDaniel *et al.* discloses a catalyst comprising at least one organometal compound, at least one organoaluminum, and at least one treated solid oxide, wherein said treated solid oxide comprises molybdenum, a halogen selected from chloride or bromide, and a solid oxide selected from alumina, aluminophosphate, or aluminosilicate (claim 1). The organometal is selected from 1,2-ethanediyl*bis*(indenyl)di-*n*-butoxyhafnium, 1,2-ethanediyl*bis*(indenyl)dimethylzirconium, 3,3-pentanediyl*bis*(tetrahydroindenyl)hafnium dichloride, methylphenylsilyl*bis*(tetrahydro-indenyl) zirconium dichloride, dimethylsilyl*bis*(indenyl)zirconium dichloride, dimethylsilyl-*bis*(tetrahydroindenyl)zirconium dichloride, dimethylsilyl*bis*(2-methylindenyl)zirconium dichloride, 1,2-ethanediyl*bis*(fluorenyl) zirconium dichloride, or methyloctylsilyl*bis*(fluorenyl) zirconium dichloride (claim 32). The organoaluminum component is defined in claim 1 and identified in col. 10, lines 36-45. The reference does not disclose examples of catalysts containing the claimed metallocenes, organoaluminum, and bromided alumina. However, McDaniel *et al.* clearly contemplates such a catalyst. The inventors disclose bromided solid oxides in the claims and they teach how to prepare them chemically (col. 12, lines 16-18 and 23-28). Furthermore, McDaniel *et al.* discloses a limited genus of solid oxide that one having ordinary skill in the art would have immediately envisioned the claimed species (bromided alumina). Therefore, it would have been obvious to one having ordinary skill in the art to make the catalyst composition of claims 38-43 from the teachings of McDaniel *et al*, and he would have expected such a catalyst to work with a reasonable expectation of success.

5. Claims 1-15, 18-33, 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDaniel *et al.* (U.S. 6,376,415).

The discussion of the disclosures of the prior art from the previous paragraph of this office action is incorporated here by reference. The reference teaches that catalysts are useful in preparing copolymer. In this case, catalysts are used to prepare copolymer of ethylene and at least one other monomer selected from the group consisting of propylene, 1-butene, 1-hexene, *etc.* (col. 14, lines 24-27). One having ordinary skill in the art would have found it obvious to use the catalyst of the prior art for making ethylene/α-olefin copolymer because McDaniel *et al.* teaches such an application. There is no disclosure of the properties of copolymers prepared in such a manner, however, in view of the fact that the catalyst and process used to prepare copolymer are essentially the same as that described in the instant claims, a reasonable basis exists to believe that the copolymer will exhibit substantially the same properties. It is noted that the film properties such as clarity and haze are also a consequence of processing methods – nucleation, stretching, *inter alia*. However, one having ordinary skill in the art also would have expected copolymers to exhibit the claimed film properties. Since the PTO can not perform experiments, the burden is shifted to the Applicants to establish an unobviousness difference. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

McDaniel *et al.* discloses use of isobutane as diluent for polymerization reactions (col. 14, line 47). Also, use of aluminoxane or borate as additional activator may be used in particular embodiments of the invention. Since these features are disclosed in the prior art, one having ordinary skill in the art would have found it obvious to follow these teachings and thereby arrive at the subject matter of claims 18, 19, 36, and 37.

6. Claims 38-43 are rejected under 35 U.S.C. 102(b) as being anticipated by McDaniel *et al.* (U.S. 6,355,594).

McDaniel *et al.* discloses a catalyst comprising at least one organometal compound, at least one organoaluminum, and at least one fluorided silica-alumina (claim 1). The organometal compound is 1,2-ethanediyl*bis*(indenyl)di-*n*-butoxyhafnium, 1,2-ethanediyl*bis*(indenyl)dimethyl zirconium, 3,3-pentanediyl*bis*(tetrahydroindenyl)hafnium dichloride, methylphenylsilyl-*bis*(tetrahydroindenyl) zirconium dichloride, dimethylsilyl*bis*(indenyl) zirconium dichloride, dimethylsilyl-*bis*(tetrahydroindenyl)zirconium dichloride, dimethylsilyl-*bis*(2-methylindenyl) zirconium dichloride, 1,2-ethanediyl*bis*(fluorenyl) zirconium dichloride, or methyloctylsilyl-*bis*(fluorenyl) zirconium dichloride (claim 32). The organoaluminum component is defined in claim 1 and identified in col. 10, lines 35-44.

7. Claims 1-15, 18, 20-33, and 36 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over McDaniel *et al.* (U.S. 6,355,594).

The discussion of the disclosures of the prior art from the previous paragraph of this office action is incorporated here by reference. The inventors teach that use of to prepare copolymer of ethylene and at least one other monomer selected from the group consisting of propylene, 1-butene, 1-hexene, *etc.* (col. 134, lines 13-16) by contact of olefins with the catalyst. Polymerizations are carried out in isobutene diluent (col. 13, line 37). There is no disclosure of the properties of copolymers prepared in such a manner, however, in view of the fact that the catalyst and process used to prepare copolymer are essentially the same as that described in the instant claims, a reasonable basis exists to believe that the copolymer will exhibit substantially the same properties. It is noted that the film properties such as clarity and haze are also a consequence of processing methods – nucleation, stretching, *inter alia*. However, one having ordinary skill in the art also would have expected copolymers to exhibit the claimed film properties. Since the PTO can not perform experiments, the burden is shifted to the Applicants to establish an unobviousness difference. *In re Fitzgerald*, 619 F.2d. 67, 205 USPQ 594 (CCPA 1980). *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). See MPEP § 2112-2112.02.

8. Claims 46-48 are rejected under 35 U.S.C. 103(b) as being under 35 U.S.C. 103(a) as being unpatentable over McDaniel *et al.* (U.S. 6,355,594) in view of Welch *et al.* (U.S. 5,594,078) or Schertl *et al.* (U.S. 5,668,230).

McDaniel *et al.* discloses a catalyst comprising at least one organometal compound, at least one organoaluminum, and at least one fluorided silica-alumina (claim 1). The organoaluminum component is defined in claim 1 and identified in col. 10, lines 35-44. Organometal compounds that are used for the invention are disclosed in U.S. 5,668,230 and U.S. 5,594,078), the entire disclosures of which are incorporated by reference; see col. 4, lines 40-45. Turning to the incorporated references, one observes that Welch *et al.* discloses use of tightly bridged metallocenes diphenylsilyl*bis*(fluorenyl)zirconium dichloride, methylene-(cyclopentadienyl)(fluorenyl)zirconium dichloride, and ethylene(indenyl)(fluorenyl)zirconium dichloride are exceptional components in polymerization catalysts; see claim 8. Schertl *et al.* teaches use of a series of tightly bridged complexes that are highly useful for making olefin polymerization catalysts; see Table I, claims 3-13. Since McDaniel *et al.* contemplates use of these compounds in their catalyst systems, as evidenced by incorporation by reference, it would have been obvious to one having ordinary skill in the art to make a catalyst as per McDaniel. using the compounds of Welch *et al.* or Schertl *et al.* and thereby arrive at the subject matter of the instant claims. Since only the metallocene varies, and since metallocenes of the secondary references have been shown to be useful, one having ordinary skill in the art would have expected to combination of teachings to result in the formation of an active catalyst with a reasonable expectation of success.

There is no disclosure of the properties of copolymers prepared in such a manner, however, in view of the fact that the catalyst and process used to prepare copolymer are essentially the same as that described in the instant claims, a reasonable basis exists to believe that the copolymer will exhibit substantially the same properties. Since the PTO can not perform experiments, the burden is shifted to the Applicants to establish an unobviousness difference. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

9. Claims 38-43 and 48 are rejected under 35 U.S.C. 102(e) as being anticipated by Hawley *et al.* (U.S. 6,667,274).

Hawley *et al.* discloses a catalyst comprising *rac*-dimethylsilyl*bis*(indenyl) zirconium dichloride (A), *rac*-1,2-ethanediyl*bis*(indenyl)zirconium dichloride (B), dimethylsilyl-*bis*(2-methylindenyl) zirconium dichloride (C), and *rac*-ethylene*bis*(2-methylindenyl) zirconium dichloride (D), triethylaluminum, and chlorided, zinc-containing alumina (Table II). Compound (D) is not one of the excluded compounds recited in the Markush group of claim 48.

The applied reference has a common inventor and assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

10. Claims 1-15, 18, 20-33, 36, and 38-43 are rejected under 35 U.S.C. 102(e) as being anticipated by McDaniel *et al.* (U.S. 6,613,852).

McDaniel *et al.* discloses a catalyst comprising at least one organometal compound, at least one organoaluminum, and at least one fluorided silica-alumina (claim 1). The organoaluminum component is defined in claim 1 and identified in col. 10, lines 40-48. The organometal compound is a tightly-bridged metallocene shown in columns 5-10. The catalyst is used in a process for polymerizing ethylene and at least one aliphatic 1-oleifn having 3-20 carbon atoms per molecule (claim 6). Since the catalyst and process is essentially the same as that recited in the instant claims, the resulting copolymer inherently possesses the claimed properties.

The applied reference has a common inventor and assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived

from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

11. Claims 38-43 are rejected under 35 U.S.C. 102(e) as being anticipated by McDaniel *et al.* (U.S. 6,548,442).

McDaniel *et al.* discloses a catalyst comprising at least one organometal compound, at least one organoaluminum, and at least one chlorided, bromided, or fluorided silica-alumina (claim 1). The solid oxide also comprises an additional metal selected from Zn, Ag, Cu, Sb, Ga, Sn, Ni, or W (claim 3). The organoaluminum component is defined in claim 1 and identified in col. 10, lines 35-44. The organometal compounds are listed in claim 31.

The applied reference has a common inventor and assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Response to Arguments

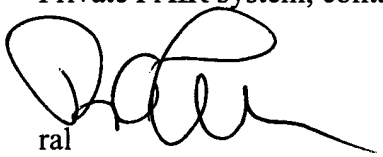
12. Applicants traverse the rejection of claims under 35 U.S.C. 112, 1st paragraph, set forth in the previous office action. Applicants' arguments have considered fully, and the three cases, *Ex parte Grasselli*, *Ex parte Parks*, and *In re Johnson*, have been reviewed. Upon further consideration, the examiner concludes that Applicants had possession of the concept of what is claimed in order to satisfy the description requirement. Accordingly, the rejection of claims 1-15, 18-33, and 36-43 has been withdrawn.

Claims 46-48 remain rejected. As indicated previously, the structures revealed on pages 11-13 of the specification clearly show that all compounds listed in claims 46-48, except nonylphenylsilyl*bis*(1-indenyl)hafnium dichloride, are preferred embodiments of the invention. This compound is not disclosed unambiguously nor is it immediately envisioned from the general description cited by Applicant. Even one of exceptional skill in the art, reading the specification, would not readily arrive at the bridging group nonylphenylsilyl, which contains two differing hydrocarbon groups (compared with ubiquitous dimethylsilyl, where both groups are identical), and furthermore, the combination of alkyl and aryl substituents from the general description "where R^1 in each instance is independently selected from a linear, branched, substituted, or unsubstituted hydrocarbyl group, any one of which having form 1 to about 30 carbon atoms." Applicants' argument erodes severely in light of the fact that the phenyl substituent on silicon does not satisfy the structural features described herein. In view of this and previous discussion, the rejection of record has not been withdrawn.

13. The rejection of claims over McDaniel *et al.* (U.S. 6,833,338) has been withdrawn. The prior art does not apply to instant claims since the reference teaches catalysts containing titanium as an essential component.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (571)272-1104. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached at (571)272-1114. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).



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March 4, 2007